UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/621,102	07/17/2003	Stephen S. Ing	117891-156747	8437

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ART UNIT	PAPER NUMBER
2621	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

	Application No.	Applicant(s)	
	10/621,102	ING ET AL.	
Office Action Summary	Examiner	Art Unit	
	Tung Vo	2621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>03</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>07/27/10</u>.

2a)☒ This action is **FINAL.**   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>50-65</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>50-65</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>17 July 2003</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1.   A request for continued examination under 37 CFR 1.114, including the fee set forth in

37 CFR 1.17(e), was filed in this application after final rejection. Since this application is

eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e)

has been timely paid, the finality of the previous Office action has been withdrawn pursuant to

37 CFR 1.114. Applicant's submission filed on 06/29/2010 has been entered.

Claim Rejections - 35 USC § 103

1.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

2.   Claim 50-65 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takashima

(US 5,754,233) in view of Zhu et al. (US 5,812,699).

Re claims 50, 55, and 62-63, Takashima teaches a system (100 of fig. 5) and method

comprising:

a processor (105 of fig. 5) to perform a bit rate control (107 of fig. 5) to compress a frame

of uncompressed image data (109 of fig. 5);

a controller (104, 107, and 108 of fig. 5, elements are formed as a controller) coupled said

processor (105 of fig. 5) to determine a capability of a codec under the control of the processor

(105 of fig. 5) to compress image data based on whether a difference between a compression

time for a current frame (105 of fig. 5, note the encoding apparatus 100 also includes a counter

104 and a timing control circuit 105 fed with outputs of the counter 104 and the scene change

detection circuit 101) and a target frame period exceeds a threshold (107 of fig. 5; see also fig.

8); and

      a compressor (100 of fig. 5) including the processor (105 of fig. 5) and the codec (106

and 109 of fig. 5), the compressor (e.g. 106 and 109 of fig. 5) further including a first data e data

stored in the first data storage queue (Video In is uncompressed data stored in the frame storage

queue (102 of fig. 5, a frame memory) and a second data storage queue (110 and 111 of fig. 5)

coupled to provide the processor (105 of fig. 1) separate from uncompressed image memory, 102

of fig. 5),

      a respective current count values (e.g. 104 of fig. 5, picture counter, macro-block counter,

and other counters, the counter (104) provides count values to the generator (105)) of the

uncompressed image data stored in the first data storage queue and separate from compressed

image data stored in the second data storage queue (e.g. a code buffer stored the compressed

image data, 110 of fig. 5), a current byte count of the compressed image data stored in the second

data storage queue (e.g. a buffer counter, 108 of fig. 5), to allow the processor (105 of fig. 5) to

facilitate an adiusting of a target frame rate (107 of fig. 5); wherein the compression time (105 of

fig. 5, note If a scene change is detected at the 15th picture I(15), the timing control circuit 105

sets the pictures I(12) to B(11) as one GOP in the encoding sequence. The timing control circuit

105 generates a timing control signal by which the 15th picture, accompanying a time slot which

should inherently be allocated to a P-picture, is processed as an I-picture. In other words, the

timing control circuit 105 generates and transmits a timing control signal which will cause the

picture I(15) to be initially read out from the frame memory 102 to the encoding processing

circuit 106 and to the ME circuit 103. Consequently, the number of residual bits allocated to the

GOP is significantly reduced at this picture I(15)) is based at least in part upon a quantization

parameter calculated and selected by the processor (107 of fig. 5,) to fall within an upper and a

lower limit for each row of macroblocks in the current frame.

It is noted that Takashima does not particularly teach a respective current byte count of a

current frame of the uncompressed image data as claimed.

However, Zhu teaches a respective current byte count ((C) BIT COUNTER (KBYTES)

of fig. 3A and 3B) of a current frame ((A) FRAMES of fig. 3A and 3B) of the uncompressed

image data (FRAMES of fig. 3A and 3B).

Therefore, taking the teachings of Takashima and Zhu as a whole, it would have been

obvious to one of ordinary skill in the art to modify the teachings of Zhu into the system of

Takashima to provide an improved scheme for selecting frames for video compression.

Re claims 51 and 56, Takashima further discloses wherein said controller is further to

adjust said target frame rate based at least in part on the compression time (104, 105, and 107 of

fig. 5).

Re claims 52 and 57, Takashima further discloses wherein said controller is configured to

adjust said target frame rate to a value equal to a frame rate of a video capture device divided by

an integer divisor (107 of fig. 5, see also fig. 8).

Re claims 53 and 58, Takashima further discloses wherein the frame rate of the video

capture device is 30 frames per second and the integer divisor has a value between 1 and 30 (e.g.

Video In is inherently 30 frames per second and the rate controller sets a range for the code

generation rate which ranges from a picture next to an intra-picture to the next intra-picture,

which encompasses a value between 1 to 30, 107 of fig. 5).

Re claims 54, 59, and 64 Takashima further discloses wherein the threshold corresponds

to a predetermined portion of the target frame period (Note In the encoding apparatus 100 shown

in FIG. 5, a scene change is detected by integrating the inter-picture differences for one picture

period, 101 of fig. 4).

Re claim 60, Takashima further discloses wherein the codec (106 and 109 of fig. 5) is

coupled to receive the uncompressed image data from the first data storage queue (102 of fig. 5)

and coupled to provide the compressed image data to the second data storage queue (110 of fig.

5) .

Re claim 61, Takashima further discloses wherein the processor (105 and 107 of fig. 5) is

to control a compression rate of the codec.

Re claim 65, Takashima further teaches wherein the compression algorithm is configured

to compare a bit usage distribution of a current video frame to a bit usage distribution of a

previous video frame (106 of fig. 5).

Response to Arguments

3.   Applicant's arguments filed 06/29/2010 have been fully considered but they are not

persuasive.

The applicant argues that Takashima wherein the compression time is based at least in part upon a quantization parameter determined by the processor to fall within an upper and a lower limit for each row of macroblocks in the current frame.

The examiner respectfully disagrees with the applicant. It is submitted that Takashima discloses wherein the compression time (105 of fig. 5, note If a scene change is detected at the 15th picture I(15), the timing control circuit 105 sets the pictures I(I2) to B(11) as one GOP in the encoding sequence. The timing control circuit 105 generates a timing control signal by which the 15th picture, accompanying a time slot which should inherently be allocated to a P-picture, is processed as an I-picture. In other words, the timing control circuit 105 generates and transmits a timing control signal which will cause the picture I(15) to be initially read out from the frame memory 102 to the encoding processing circuit 106 and to the ME circuit 103. Consequently, the number of residual bits allocated to the GOP is significantly reduced at this picture I(15)) is based at least in part upon a quantization parameter calculated and selected by the processor (107 of fig. 5,) to fall within an upper and a lower limit for each row of macroblocks in the current frame.

4.   Applicant's arguments filed 02/05/2010 have been fully considered but they are not persuasive.

The applicant argues that Takashima and Zhu are not obvious to combine to render the claimed invention, and neither Takashima nor Zhu performs of counting respective current byte count of a current frame of the uncompressed image data.

The examiner strongly disagrees with the applicant. It is submitted that Takashima

teaches the counter (104 of FIG. 5) to be made up of a picture counter 104a, a macro-block

counter 104b and a counter 104c for performing various other counting operations. Wherein the

macro-block counter (104b of fig.5) would be able to the number of macroblocks in the picture,

wherein each of macroblock comprises bits, and 8 bits is equaled to 1 byte. When the

macroblock counter (104b of fig. 5) number of macroblocks in the picture, the number of bits are

inherently counted. The results of the counter (104 of fig. 5) are used for the rate control.

Zhu teaches a respective current byte count ((C) BIT COUNTER (KBYTES) of fig. 3A and 3B)

of a current frame ((A) FRAMES of fig. 3A and 3B) of the uncompressed image data (FRAMES

of fig. 3A and 3B) and wherein the target rate is T1-T8 ((B) of fig. 3A.

Since Takashima teaches the counter for counting the number of macroblock of the

picture and Zhu teaches the value of the bit counter as each input frame is captured, they are both

in the compression environment, so they are combinable to render the claimed invention.

The applicable Legal Standard

The applicant pointed out the office action doe not produce a prima facie case and

evidence of nonobviousness, page 13 of the appeal brief.

In response to applicant's argument that there is no suggestion to combine the references,

the examiner recognizes that obviousness can only be established by combining or modifying the

teachings of the prior art to produce the claimed invention where there is some teaching,

suggestion, or motivation to do so found either in the references themselves or in the knowledge

generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5

USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir.

1992). In this case, the Office Action above, paragraph 9, suggests all limitations to make

obvious the claimed invention.

The applicant argues that there is no teaching, suggestion, or motivation in the rejections.

In response to applicant's argument, the obviousness can only be established by combining or

modifying the teachings of the prior art to produce the claimed invention where there is some

teaching, suggestion, or motivation to do so found either in the references themselves or in the

knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071,

5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir.

1992).

In further response to applicant's argument, the examiner would like point out the

following basic principle of a proper prior art analysis within 35 U.S.C. 103 (a). Not only the

specific teachings of a reference but also reasonable inferences which the artisan would have logically

drawn therefrom may be properly evaluated in formulating a rejection. In re Preda, 401 F.2d 825,

159 USPQ 342 (CCPA 1968) and In re Shepard, 319 F.2d 194, 138 USPQ 148 (CCPA 1963). Skill in

the art is presumed. In re Sovish, 769 F.2d 738, 226 USPQ 771 (Fed. Cir. 1985). Furthermore, artisans

must be presumed to know something about the art apart from what the references disclose. In re

Jacoby, 309 F.2d 513, 135 USPQ 317 (CCPA 1962). The obviousness may be made from common

knowledge and common sense of a person of ordinary skill in the art without any specific hint or

suggestion in a particular reference. In re Bozek, 416 F.2d 1385, 163 USPQ 545 (CCPA 1969)).

Every reference relies to some extent on knowledge of persons skilled in the art to complement that

which is disclosed therein. In re Bode, 550 F.2d 656, 193 USPQ 12 (CCPA 1977).

Contact Information

5.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Tung Vo whose telephone number is 571-272-7340. The

examiner can normally be reached on Monday-Wednesday, Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Mehrdad Dastouri can be reached on 571-272-7418. The fax phone number for the

organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would

like assistance from a USPTO Customer Service Representative or access to the automated

information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Tung Vo/
Primary Examiner, Art Unit 2621